

***What is claimed is:***

1. (Currently amended) A method of generating repetitive pulsed radiation with a multiplicity  
of additional discrete wavelengths,  
5 the method comprising:  
positioning an optical processing medium in a resonant cavity with reflective elements;  
and  
generating repetitive pulsed radiation from a pulsed laser source in a pump cavity with  
reflective elements;  
10 and  
coupling the resonant and pump cavities;  
and  
seeding the optical processing medium with at least some of the discrete wavelengths, such  
that pulsed radiation with a multiplicity of additional discrete wavelengths is generated.  
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2. The method of claim 1, wherein the optical processing medium has zero dispersion centered  
on the desired multiplicity of wavelengths.
- 20 3. The method of claim 1, wherein the optical processing medium is highly non-linear medium.
4. The method of claim 1, wherein the optical processing medium is dispersion shifted medium.
5. The method of claim 1, wherein the optical processing medium is dispersion shifted fiber.
- 25 6. The method of claim 1, wherein the optical processing medium is photonic crystal.
7. The method of claim 1, wherein the optical processing medium is photonic crystal fiber.